WHAT IS CLAIMED IS:

1. An equalizer for processing blocks of data comprising:

a finite filter having an output, wherein the finite filter is arranged to substantially eliminate a ghost from a received signal in order to provide a substantially ghost free signal at the output; and,

a post-processor arranged to apply a window function to the output of the finite filter, wherein the window function has a duration substantially equal to a duration of a block of data.

2. The equalizer of claim 1 wherein the finite filter is a time domain finite filter.

3. The equalizer of claim 2 wherein the time domain finite filter comprises an FIR filter.

4. The equalizer of claim 1 wherein the finite filter is a frequency domain finite filter.

5. The equalizer of claim 4 wherein the frequency domain finite filter comprises a Fast Fourier Transform arranged to transform the received signal to the frequency domain, a multiplier arranged to multiply the received signal by coefficients to substantially eliminate the ghost from the received signal, and an inverse Fast Fourier Transform arranged to transform the substantially ghost free signal back to the time domain.

6. The equalizer of claim 1 further comprising a pre-processor, wherein the pre-processor applies coefficients b to the received signal, wherein pre-processor is arranged to provide a pre-processed output to the finite filter, and wherein the post-processor applies coefficients c.

7. The equalizer of claim 6 wherein the coefficients b comprise a window function having a duration substantially equal to a duration of a block of data plus a temporal separation between a main signal and a ghost of the main signal.

8. The equalizer of claim 6 wherein the coefficients b and c equal 1.

9. The equalizer of claim 6 wherein the coefficients b comprise steps of different magnitudes, and wherein the coefficients c comprise steps of different magnitudes.

10. The equalizer of claim 9 wherein each of the steps has a length in time substantially equal to a temporal separation between a main signal of the received signal and the ghost, and wherein a ratio of the magnitude of one of the steps to the magnitude of an adjacent step is unequal to one.

11. The equalizer of claim 9 wherein the steps of one of the coefficients b and c are of decreasing magnitude, and wherein the steps of the other of the coefficients b and c are of increasing magnitude.

12. The equalizer of claim 6 wherein the coefficients b comprise an exponential curve, and wherein the coefficients c comprise an exponential curve.

13. The equalizer of claim 12 wherein the exponential curve of one of the coefficients b and c is of decreasing magnitude, and wherein the exponential curve of the other of the coefficients b and c is of increasing magnitude.

14. The equalizer of claim 1 wherein the window function extends between t_0 and t_c, wherein the duration $t_c - t_0$ substantially matches a block of data, wherein the window function is substantially zero for $t < t_0$ and for $t > t_c$, and wherein the window function is non-zero where $t_0 < t < t_c$.

15. The equalizer of claim 1 wherein the finite filter applies coefficients a to a main signal of the received signal and to the ghost.

16. The equalizer of claim 15 wherein the coefficients a are complex.

17. The equalizer of claim 1 further comprising a pre-processor, wherein the pre-processor applies coefficients b to the received signal so as to make a main signal of the received signal and the ghost unequal and so as to form an output, and wherein pre-processor is arranged to provide the output to the finite filter.

18. The equalizer of claim 17 wherein the coefficients b comprise steps of different magnitudes.

19. The equalizer of claim 18 wherein each of the steps has a duration substantially equal to a temporal separation between the main signal and the ghost, and wherein a ratio of the magnitude of one of the steps to the magnitude of an adjacent step is unequal to one.

20. The equalizer of claim 17 wherein the coefficients b comprise an exponential curve.

21. The equalizer of claim 17 wherein the coefficients b are complex.

- 22. The equalizer of claim 17 wherein the post-processor applies coefficients c to the filtered signal so as to remove the modulation introduced by the pre-processor.

23. The equalizer of claim 22 wherein the coefficients c comprise steps of different magnitudes.

24. The equalizer of claim 23 wherein each of the steps has a duration substantially equal to a temporal separation between the main signal and the ghost, and wherein a ratio of the magnitude of one of the steps to the magnitude of an adjacent step is unequal to one.

25. The equalizer of claim 22 wherein the coefficients c comprise an exponential curve.

26. The equalizer of claim 22 wherein the coefficients c are complex.

27. The equalizer of claim 22 wherein the finite filter applies coefficients a to an output of the pre-processor, and wherein the output contains the received main signal and the ghost.

28. The equalizer of claim 27 wherein the coefficients a are complex.

29. The equalizer of claim 17 wherein the post-processor applies coefficients c, wherein the coefficients c have a duration substantially equal to a duration of a data block, and wherein the coefficients b have a duration substantially equal to the duration of a data block plus a temporal separation between the main signal and the ghost.

30. The equalizer of claim 29 wherein the finite filter applies coefficients a to an output of the pre-processor, and wherein the coefficients a have a duration which is greater than the duration of a data block.

31. The equalizer of claim 1 wherein the finite filter applies coefficients a to the received signal, wherein the post-processor applies coefficients c to the output of the finite filter, wherein the coefficients a have a duration which is greater than a duration of a data block, and wherein the coefficients c have a duration which substantially matches the duration of a data block.

32. The equalizer of claim 31 wherein the coefficients a have a duration which is substantially twice the duration of a data block.

33. An equalizer comprising:

a pre-processor, wherein the pre-processor applies coefficients b to a received main signal and a ghost of the received main signal in order to modulate the received main signal and the ghost;

a finite filter, wherein the finite filter applies coefficients a to the modulated received main signal and ghost in order to substantially eliminate the ghost; and,

a post-processor, wherein the post-processor applies coefficients c as a window function to the received main signal in an output of the finite filter in order to remove the modulation imposed on the received main signal by the coefficients b.

34. The equalizer of claim 33 wherein the finite filter is a time domain finite filter.

35. The equalizer of claim 34 wherein the time domain finite filter comprises an FIR filter.

36. The equalizer of claim 33 wherein the finite filter is a frequency domain finite filter.

37. The equalizer of claim 36 wherein the frequency domain finite filter comprises a Fast Fourier Transform arranged to transform the received main signal and the ghost to the frequency domain, a multiplier arranged to multiply the received main signal and the ghost by the coefficients A in order to substantially eliminate the ghost, and an inverse Fast Fourier Transform arranged to transform the received main signal back to the time domain.

38. The equalizer of claim 33 wherein the coefficients b comprise steps of different magnitudes, wherein each of the steps has a duration substantially equal to a temporal separation between the received main signal and the ghost, and wherein a ratio of the magnitude of one of the steps to the magnitude of an adjacent step is unequal to one.

39. The equalizer of claim 33 wherein the coefficients b comprise an exponential curve.

40. The equalizer of claim 33 wherein the coefficients c comprise steps of different magnitudes, wherein each of the steps has a duration substantially equal to a temporal separation between the received main signal and the ghost, and wherein a ratio of the magnitude of one of the steps to the magnitude of an adjacent step is unequal to one.

41. The equalizer of claim 33 wherein the coefficients c comprise an exponential curve.

42. The equalizer of claim 33 wherein the coefficients b and c comprise steps of different magnitudes, wherein each of the steps has a duration substantially equal to a temporal separation between the received main signal and the ghost, and wherein a ratio of the magnitude of one of the steps to the magnitude of an adjacent step is unequal to one.

43. The equalizer of claim 33 wherein the coefficients b and c comprise corresponding exponential curves.

44. The equalizer of claim 33 wherein the coefficients c have a duration substantially equal to a duration of a data block, and wherein the coefficients b have a duration substantially equal to the duration of a data block plus a temporal separation between the received main signal and the ghost, and wherein the coefficients a have a duration which is substantially twice the duration of a data block.

45. A method of substantially eliminating a ghost of a received main signal containing data blocks comprising the following steps:

a) applying coefficients a to the received main signal and the ghost in order to substantially eliminate the ghost, thereby producing a substantially ghost-free signal, wherein the coefficients a have a duration longer than a duration of a data block; and,

b) applying coefficients c to the substantially ghost-free signal, wherein the coefficients c form a window

function having a duration substantially equal to the duration of a data block.

46. The method of claim 45 further comprising the step of applying, prior to step a), coefficients b to the received main signal and the ghost in order to modulate the received main signal and the ghost so that the received main signal and the ghost are unequal.

47. The method of claim 46 wherein step b comprises the step of applying the coefficients c so as to remove the modulation imposed on the received main signal by the coefficients b.

48. The method of claim 46 wherein the coefficients b and c comprise steps of different magnitudes, wherein each of the steps has a length in time substantially equal to a temporal separation between the received main signal and the ghost, and wherein a ratio of the magnitude of one of the steps to the magnitude of an adjacent step is unequal to one.

49. The method of claim 46 wherein the coefficients b and c comprise corresponding exponential curves.

50. The method of claim 46 wherein the coefficients b comprise steps of different magnitudes, wherein each of the steps has a length in time substantially equal to a temporal separation between the received main signal and the ghost, and wherein a ratio of the magnitude of one of the steps to the magnitude of an adjacent step is unequal to one.

51. The method of claim 46 wherein the coefficients b comprise an exponential curve.